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SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC			MACKOWEY, ANTHONY M	
2100 Pennsylvania Avenue, N.W. Washington, DC 20037-3202			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

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	Application No.	Applicant(s)				
Office Action Commons	10/026,433	ARAKAWA, SATOSHI				
Office Action Summary	Examiner	Art Unit				
<u>.</u>	Anthony Mackowey	2623				
The MAILING DATE of this communication app Period for Reply	pears on the cover sheet with the	correspondence address -				
A SHORTENED STATUTORY PERIOD FOR REPL' THE MAILING DATE OF THIS COMMUNICATION. - Extensions of time may be available under the provisions of 37 CFR 1.1 after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a repl If NO period for reply is specified above, the maximum statutory period of Failure to reply within the set or extended period for reply will, by statute Any reply received by the Office later than three months after the mailing earned patent term adjustment. See 37 CFR 1.704(b).	36(a). In no event, however, may a reply be ti y within the statutory minimum of thirty (30) da will apply and will expire SIX (6) MONTHS from the cause the application to become ABANDONI	mely filed ys will be considered timely. the mailing date of this communication. ED (35 U.S.C. § 133).				
Status						
1) Responsive to communication(s) filed on 27 D	ecember 2001.					
	action is non-final.					
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Disposition of Claims						
4) ☐ Claim(s) 1-9 is/are pending in the application. 4a) Of the above claim(s) is/are withdray 5) ☐ Claim(s) is/are allowed. 6) ☐ Claim(s) 1-9 is/are rejected. 7) ☐ Claim(s) is/are objected to. 8) ☐ Claim(s) are subject to restriction and/or	·					
Application Papers						
9) The specification is objected to by the Examine	er.					
10) \boxtimes The drawing(s) filed on <u>12/27/2001</u> is/are: a) \boxtimes accepted or b) \square objected to by the Examiner.						
Applicant may not request that any objection to the	• • • • • • • • • • • • • • • • • • • •	` '				
Replacement drawing sheet(s) including the correct 11) The oath or declaration is objected to by the Ex	= : :	•				
Priority under 35 U.S.C. § 119		•				
a) Acknowledgment is made of a claim for foreign a) All b) Some * c) None of: 1. Certified copies of the priority document 2. Certified copies of the priority document 3. Copies of the certified copies of the priority document application from the International Burea * See the attached detailed Office action for a list	es have been received. Is have been received in Application It is not been received.	tion No red in this National Stage				
Attachment(s) 1) ☑ Notice of References Cited (PTO-892) 2) ☑ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) ☑ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 12/27/2001.	4) Interview Summan Paper No(s)/Mail D 5) Notice of Informal 6) Other:					

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4/1-2, 5-7, and 9/5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,210,415 to Ito.

As to claim 1, Ito discloses a radiation image signal processing method (col. 1, lines 7-10), comprising the steps of:

- i) performing image position correcting processing for correcting a low energy image signal and/or a high energy image signal, such that a position of an image, which is represented by the low energy image signal (SO₁), and a position of an image, which is represented by the high energy image signal (SO₂) coincide with each other, a pair of corrected original image signals being thereby obtained (col. 8, lines 29-37, Ito discloses position adjustment processing is carried out such that the positions of the X-ray images coincide with each other.).
- ii) performing first energy subtraction processing on the pair of the corrected original image signals (col. 9, lines 10-26, Ito discloses an energy subtraction process in which the resulting image signal represents soft tissue.), and
- iii) performing second energy subtraction processing with respect to the low energy image signal and the high energy image signal (col. 10, lines 19-23, Ito discloses generating an

image signal representing bone using the same method with different parameters (weighting values).),

wherein the second energy subtraction processing is performed by the utilization of the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction (col. 9, lines 10-19, Ito discloses the subtraction process is carried out on the first and second image signals, specifically that components of the weighted signals are subtracted from each other which represent the image information stored at corresponding picture elements in the two images. This indicates the two position corrected original image signals have been stored for use in the subtraction process.)

Ito performs the position correcting process prior to the energy subtraction step in the first energy subtraction process, thus these corrected image signals would be saved in memory, as the process is computer based, and these saved image signals would be available for both the first and second energy subtraction processes.

As to claim 2, Ito further discloses the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing, are stored (col. 9, lines 10-19, Ito discloses the subtraction process is carried out on the first and second image signals, specifically that components of the weighted signals are subtracted from each other which represent the image information stored at corresponding picture elements in the two images. This indicates the two position corrected original image signals have been stored for use in the subtraction process.), and

the second energy subtraction processing is performed by the utilization of the pair of the corrected original image signals, which have thus been stored.

As stated above, the corrected image signals have been stored, thus they would be available for the second energy subtraction process.

As to claim 4/1-2, Ito further discloses the image position correcting processing is performed on only the high energy signal (col. 8, lines 40-44, The reference in essence allows either one to be corrected with respect to the other signal, thus meeting the limitation.).

As to claim 5, Ito discloses a radiation image signal processing apparatus (col. 1, lines 10-11). As to the remainder of the claim arguments analogous to those presented in claim 1 are applicable to claim 5.

As to claim 6, Ito discloses the apparatus comprises:

- a) common energy subtraction processing means for performing the first energy subtraction processing and the second energy subtraction processing (col. 7, lines 67-68, Ito teaches the main body of the apparatus incorporates a CPU.).
- b) storage means for storing the pair of the corrected original image signals, which have been obtained at the time of the first energy subtraction processing (col. 7, lines 65-68, Ito teaches the apparatus includes a floppy disk drive unit serving as an auxiliary storage medium as well as internal memory.),
- c) instruction means for outputting an instruction for performing the second energy subtraction processing, and
- d) control means for controlling the common energy subtraction processing means in accordance with the instruction, which has been outputted from the instruction means, such that the common energy subtraction processing means performs the second energy subtraction

processing by the utilization of the pair of the corrected original image signals, which have been stored in the storage means.

With regard to c and d the process is performed by a computer with a CPU, memory and a floppy disk drive as discussed above and it would be inherent that the computer would have instructions for performing the second energy subtraction process stored in memory with the CPU controlling the common energy subtraction processing.

As to claim 7, arguments analogous to those presented for claim 6 above are applicable to claim 7. From the claim language it is not clear whether the second energy subtraction process is to be performed by a separate/different processing means, therefore it has been interpreted as the same processing means being capable of performing both first and second energy subtraction processing.

As to claim 9/5-7, arguments analogous to those presented above for claim 4/1-2 above are applicable to claim 9/5-7.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 4/3, 8, and 9/8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,210,415 to Ito in view of the book PACS: Basic Principles and Application by H.K. Huang, D.Sc. (Huang).

As to claim 3, Ito discloses all the limitations of claim 1, but does not disclose the method wherein the pair of correct original image signals, which have been obtained at the time of the first energy subtraction processing, are transferred to a certain destination, and

the second energy subtraction processing is performed at the transfer destination by the utilization of the pair of the corrected original image signals, which have thus been transferred.

Huang teaches a picture archiving and communication system (PACS) including a PACS Controller and Archive capable of receiving images from acquisition computers as well as archive retrieval requests from workstations (p.178, paragraph 7.1.2; p.179, Table 7). Images are transferred from the acquisition computers to the database server and archive system where they are stored until a request is received from a workstation, at which time the stored images are transferred to the workstation for viewing or processing. In essence, images obtained by a computer performing the first processing method can be transferred (via the

database server and archive system) to another computer where a second processing method can be performed utilizing the transferred images.

The teachings of Ito and Huang are combinable because PACS networks are commonly used in the medical area to store and share medical data. It would have been obvious to one of ordinary skill at the time the invention was made to have a computers performing the method and corrected original images as taught by Ito be part of a PACS network as taught by Huang.

One would have been motivated to do so because the corrected original images of a patient obtained by a doctor performing the first energy processing (i.e. one concerned with the patients heart or lungs) would be accessible to another doctor performing the second energy subtraction process (i.e. one concerned with the patients rib cage) without the need to perform the X-ray procedure again. Thus saving time and avoiding exposing the patient to additional X-rays.

As to claim 8, arguments analogous to those presented in claim 6 above are applicable to claim 8, however Ito is silent with regard to the control means for transferring the pair of corrected original image signals. As to the control means, arguments analogous to those presented in claim 3 above are also applicable to claim 8.

As to claims 4/3 and 9/8 arguments analogous to those presented above for claim 4/1-2 above are applicable to claim 4/3.

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Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Anthony Mackowey whose telephone number is (703) 306-4086. The

examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

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AM

1/21/2005

Jon Chang

Primary Examiner